2014-05-29

Project Sheet: Brown Out Algorithm

RSC
REMOTE SENSING CENTER
at the Naval Postgraduate School

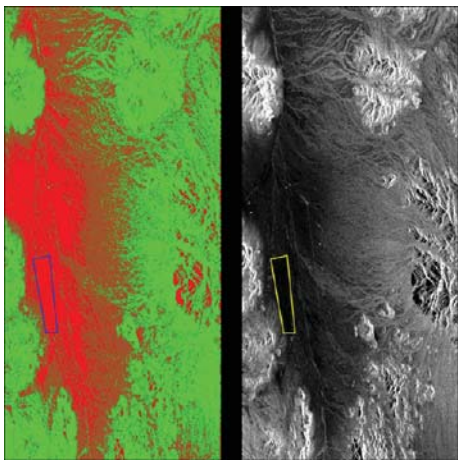
BROWN OUT ALGORITHM

Helicopter Brown-Out Algorithm

Helicopter Brown-Out costs the US approximately $100 M per year in casualties/fatalities and significant hardware and field equipment loss.

Using National Technical Means and other civil RS systems, various capabilities are being exploited showing that RS data, instruments and analysis techniques can be used not only for mitigation but also to predict and avoid brown-out conditions.

Polarimetric Synthetic Aperture Radar (SAR) data from RADARSAT-2 is analyzed for detection of soils susceptible to helicopter brown-out. Helicopter brown-out occurs when downwash disturbs the dust and sand beneath the aircraft during takeoff, landing, and low altitude operations. Brown-out may lead to pilot spatial disorientation and loss of control, causing helicopter damage or destruction, as well as personnel injury or death. The likelihood of helicopter brown-out is related to soil moisture content, particle size distribution, and surface texture.



Brown-out areas:
Red= Brownout likely;
Sienna= Unknown/Ambiguous;
Green= Non-Brown-out

This research explores the polarimetric signatures of soils, and determines if these characteristics can be used to predict areas that are susceptible to helicopter brown-out. Preliminary results show that helicopter brown-out regions can be predicted by means of a simple threshold.

RADARSAT-2 Image of brownout study area at Yuma Proving Grounds, AZ

For Further Information Contact:
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